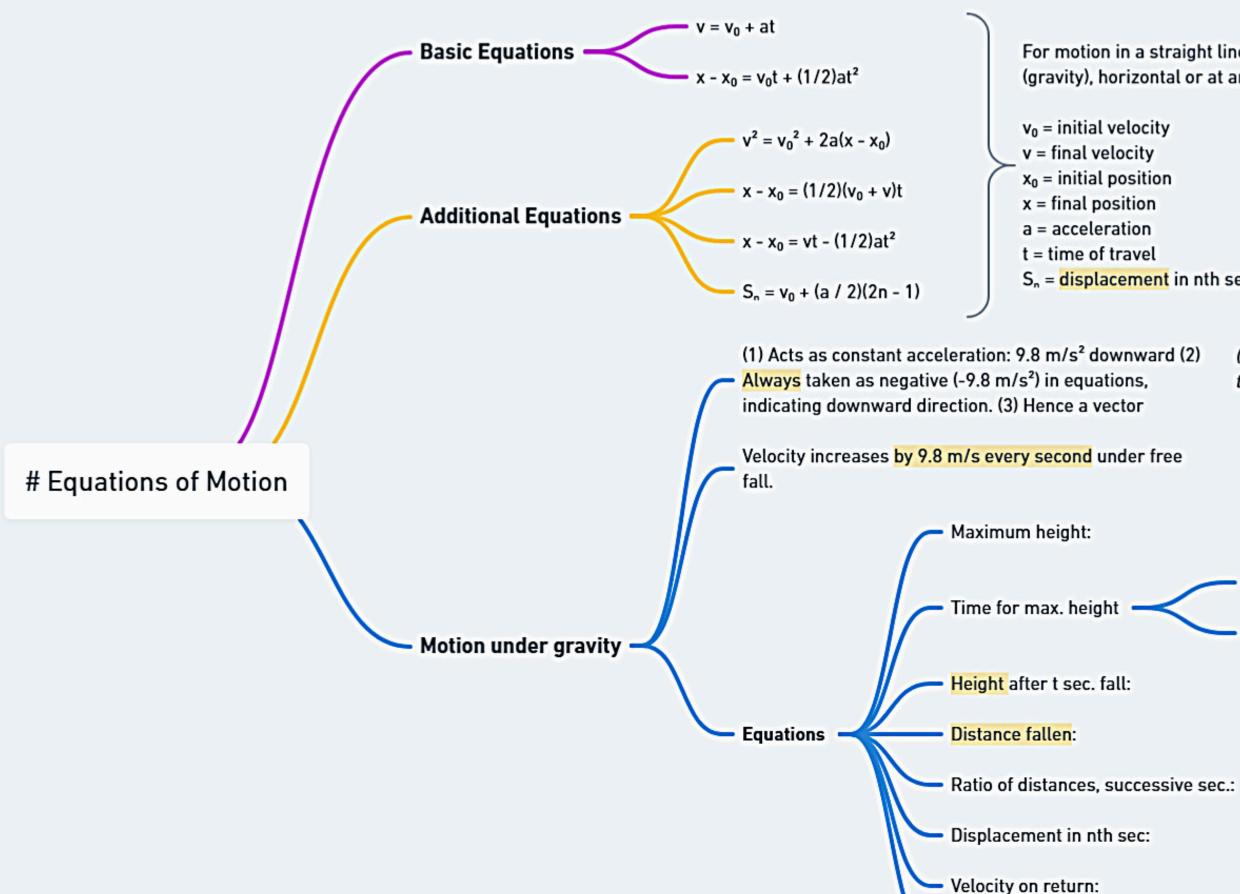
## 3. Mind Map: Equations of Motion



For motion in a straight line: vertical (gravity), horizontal or at an angle

 $S_n = \frac{\text{displacement}}{\text{displacement}}$  in nth second

Velocity just before ground impact:

(assuming a sign convention that

takes downward as -ve)

 $H = v_0^2 / (2g)$ 

 $t = \sqrt{(2H / g)}$ 

 $h = 1/2gt^2$ 

12: 22:32...

v = √2gH

 $-v_0$ 

 $h_n = (g / 2)(2n - 1)$ 

 $h' = H - (1/2)gt^2$ 

 $t = v_0 / g$ 

- 1. Use ground level as reference (y
- 2. Ensure correct sign conventions for direction
- 3. Acceleration due to gravity is active when the object reaches top of the flight

- 1. Sketch motion diagrams, indicating initial and final positions, velocities, and accelerations to better understand the problem.
- 2. Solve Algebraically Before Substituting Values: Manipulate equations symbolically to isolate the desired variable before plugging in numerical values.

